AMENDMENTS TO THE CLAIMS

Please add or amend the claims to read as follows, and cancel without prejudice or disclaimer to resubmission in a divisional or continuation application claims indicated as cancelled:

1. (**Currently Amended**) A method of compressing values of a waveform of a monitored electrical power signal, comprising:

~~acquiring data representing a plurality of periods of the waveform, wherein acquiring data representing periods of the waveform comprises~~

acquiring samples of [[the]] a power signal over a plurality of periods of the waveform; [[and]]

dividing the samples into groups, each of said groups ~~corresponding to~~ determined based on a number of cycles of the power signal included in said group;

decomposing the waveform of the power signal into a plurality of frequency components, over said plurality of periods of the waveform; and

compressing values of at least some of the frequency components over said plurality of periods, separately.

2. (Cancelled)

3. (Original) A method according to claim l, wherein compressing the values of at least some of the components comprises fitting time segments of the components into a model and recording coefficients of the fitting.

4. (Original) A method according to claim 3, wherein the model comprises a constant function over time.

5. (Original) A method according to claim 4, wherein the recorded coefficients for the constant function over time comprise a single value and a length.

6. (Original) A method according to claim 3, wherein the model comprises a monotonous function over time.

7. (Cancelled)

8. (Previously Presented) A method according to claim 1, wherein decomposing the waveform comprises transforming the samples of each group, into harmonic component values.

9. (Original) A method according to claim 8, wherein compressing at least some of the components separately comprises storing for each harmonic, pairs of an average value and a number of cycles in which the value is close to the average value.

10. (Original) A method according to claim 9, wherein the number of cycles in which the value is close to the average value is determined by determining a minimum and maximum of a train of harmonic values and determining when the distance between the minimum and maximum is greater than a predetermined distance.

11. (Original) A method according to claim 10, wherein the predetermined distance is a configured percentage of the average recent value of the harmonic.

12. (Original) A method according to claim 10, wherein the predetermined distance is a configured percentage of a configured expected value of the harmonic.

13. (**Currently Amended**) A method according to claim 1, wherein acquiring the samples comprises acquiring an analog signal and sampling the analog signal based on a sampling rate determined by a main frequency of said power signal.

14. (**Currently Amended**) A method according to claim 1, wherein dividing the samples into groups comprises repetitively determining a main power frequency of the power signal and accordingly determining cycles of the power signal.

15. (Original) A method according to claim 14, wherein sampling the signals comprises sampling at a rate determined responsive to the main power frequency.

16. (Previously Presented) A method according to claim 14, wherein repetitively determining the main power frequency comprises determining the main power frequency from the acquired samples.

17. (Previously Presented) A method according to claim 14, wherein repetitively determining the main power frequency comprises determining the main power frequency from an analog signal from which the acquired samples are generated.

18. (Original) A method according to claim 8, wherein transforming the samples of each group comprises transforming using a fast Fourier transform.

19. (Previously Presented) A method according to claim 8, comprising applying a lossless compression method to the compressed harmonic component values.

20. (Original) A method according to claim 1, comprising storing at least some of the compressed components in a file structure representing a plurality of power signals.

21. (Original) A method according to claim 1, comprising storing the compressed components in a file structure representing the power signal continuously over more than a month.

22. (Original) A method according to claim 1, comprising transmitting the compressed components over a communication link.

23. (Original) A method according to claim 1, wherein compressing at least some of the components comprises compressing each of the components separately.

24. (Original) A method according to claim 1, wherein compressing at least some of the components comprises compressing in real time.

25. (Original) A method according to claim 1, wherein compressing at least some of the components comprises compressing using a lossy compression.

26. (Original) A method according to claim 1, wherein compressing at least some of the components separately comprises compressing separately over at least three periods of the waveform.

27. (Original) A method according to claim 1, wherein the power signal comprises a current signal.

28. (Original) A method according to claim 1, wherein the power signal comprises a voltage signal.

29. (**Currently Amended**) A method according to claim 1, wherein acquiring samples of the power signal ~~data representing periods of the waveforms~~ comprises acquiring data representing an identical number of samples per cycle ~~cycles~~ of the power signal ~~waveform~~.

30. (**Cancelled**)

31. (Original) A method according to claim 1, wherein decomposing the waveform into a plurality of components comprises decomposing into components which co-extend in time.

32. (**Currently Amended**) A method of storing a representation of a monitored electrical power signal, comprising:

acquiring samples of the power signal;

dividing the samples into groups, each of said groups ~~corresponding to~~ determined based on a number of cycles of the power signal included in said group;

transforming the samples of each group, into harmonic component values; and

storing a representation of the harmonic component values on a non-volatile storage medium, continuously over at least a week.

33. (Original) A method according to claim 32, wherein storing the representation comprises storing a compressed representation of the harmonic component values.

34. (Original) A method according to claim 33, wherein storing the compressed representation comprises storing a compression based on compressing together values of each harmonic component over a plurality of cycles.

35-46. (Cancelled)

47. (Previously Presented) A method according to claim 1,

wherein compressing the values of at least some of the frequency components over a plurality of periods comprises compressing the samples of the power signal using a lossy compression method.

48. (Original) A method according to claim 47, wherein compressing the samples comprises compressing in real time.

49. (Previously Presented) A method according to claim 47, wherein acquiring the samples comprises acquiring at a rate of at least 50 samples per cycle of the power signal.